

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.:

Group Art Unit:

Inventor: R. J. Jibb

Filed: Concurrently

Title: Method For Providing Refrigeration
Using Capillary Pumped Liquid

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

In accordance with 37 CFR 1.51, 1.56 and 1.97 to 1.99, the following is a relevance statement on each citation listed on attached form PTO-1449, and is made of record to assist the Patent & Trademark Office in its examination of this application:

U.S. 5,737,927 – Takahashi et al. discloses a cryogenic cooling apparatus wherein a coil unit and a refrigeration unit are positioned such that a second heat conductive member disposed on an extendible wall of a vacuum container and a fourth heat conductive member disposed on an extendible wall of another vacuum container face each other coaxially. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,173,577 – Gold discloses cooling systems for cryogenic power conversion electronics comprising at least one cryogenically operated semiconductor switch and at least one cryogenically operated capacitor wherein liquid cryogens can be used in the heat exchange systems in conjunction with refrigeration cold heads or heat pipes. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability

surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,173,761 – Chandratilleke et al. discloses a cryogenic loop heat pipe wherein a working fluid for heat transport is contained in a loop capillary tube, and a portion of the loop capillary tube is used as a heat absorbing portion while another portion is used as a heat dissipating portion. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,192,690 – Stautner discloses a cooling system for cryostats or transport containers for liquids incorporating a PTR cooler. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,311,498 – Chase discloses a high temperature superconductor filter system comprising a cryocooler and a dewar assembly, a heat dissipation assembly and at least one heat pipe providing a thermal coupling between the heat dissipation assembly and the cryocooler and the dewar assembly. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working

fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,430,938 – Royal et al. discloses a cryogenic vessel system for containing cryogenic fluid wherein heat leak into the vessel interior is counteracted by refrigeration generated from energy provided by a pulse generator. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,453,677 – Arman discloses a cryogenic vessel system for containing cryogenic fluid wherein refrigeration is generated by applying and withdrawing a magnetic field to a bed of magnetizable particles, and the refrigeration is provided to the vessel interior to counteract heat leak into the vessel. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

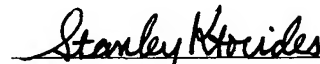
U.S. 6,477,847 – Bonaquist et al. discloses a method wherein refrigeration is generated, preferably using a pulse tube cryocooler or refrigerator, to produce cold working gas which is used to liquefy coupling fluid circulating between a coupling fluid liquid reservoir and a refrigeration load, such as superconductivity equipment, using thermo-siphon effects. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to

generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,550,255 – Rudick et al. discloses a refrigeration system with a thermosiphon heat exchanger wherein the thermosiphon may include condenser end and an evaporator end and wherein a Stirling cooler may drive the thermosiphon to cool a refrigerated space. There is no disclosure of a method for providing refrigeration to a refrigeration load such as superconducting equipment while reducing or eliminating potential two phase instability oscillations wherein refrigeration condenses working fluid which is evaporated from the surface of a porous wick housed in an evaporator to generate a capillary pumping force to drive the condensed working fluid to the evaporator, and thus this patent neither discloses nor suggests the claimed invention.

A copy of each of the citations is enclosed herewith.

Respectfully submitted,


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Information Disclosure Citation (Use several sheets if necessary)				Applicant R. J. Jibb			
				Filing Date		Group	

U.S. PATENT DOCUMENTS													
Examiner Initial	Document Number								Date	Name	Class	Subclass	Filing Date if Appropriate
	5	7	3	7	9	2	7	4/1998	Takahashi et al.	62	51.1		
	6	1	7	3	5	7	7	1/2001	Gold	62	51.1		
	6	1	7	3	7	6	1	1/2001	Chandratilleke et al.	165	104.21		
	6	1	9	2	6	9	0	2/2001	Stautner	62	6		
	6	3	1	1	4	9	8	11/2001	Chase	62	6		
	6	4	3	0	9	3	8	8/2002	Royal et al.	62	6	10-18-01	
	6	4	5	3	6	7	7	9/2002	Arman	62	3.1	4-5-02	
	6	4	7	7	8	4	7	11/2002	Bonaquist et al.	62	99	3-28-02	
	6	5	5	0	2	5	5	4/2003	Rudick et al.	62	6	3-21-01	

FOREIGN PATENT DOCUMENTS														
	Document Number								Date	Country	Class	Subclass	Translation	
													Yes	No

Other Documents (including Author, Title, Date, Pertinent Pages, Etc.)			

Examiner	Date Considered
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* EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.